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EXHIBIT A

ABSTRACT OF THE INVENTION

~~The present invention efficiently stores~~ Some embodiments store a
training sequence in a communications system~~[[,]].~~ ~~where the~~ The stored
training sequence exhibits certain desirable characteristics when used by a peak
to average power constrained modulation format. In one embodiment,~~the~~
~~invention includes selecting a set of one or more original ordered sequences is~~
selected to have such that the set of ordered sequences has at least one desired
property[[,]]. ~~creating a~~ A set of extended sequences, each based on an original
ordered sequence is created from the original sequences by beginning with an
element of an original sequence~~[[,]]~~ and cyclically appending elements of the
original sequence in order to obtain a desired extended sequence length~~[[,]].~~ ~~and~~
~~modifying each~~ Each extended sequence is modified using a corresponding
modifying sequence, such that a training sequence can be generated from any
one of the modified extended sequences. ~~by beginning with any one element of~~
~~any one modified extended sequence and taking each element of the any one~~
~~sequence in order to obtain the training sequence, the~~ Each modifying sequence
being is selected so that the obtained generated training sequence when
modulated by a selected modulation format has the at least one desired property
of the corresponding original ordered sequence.

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Some embodiments store a training sequence in a communications system. The stored training sequence exhibits certain desirable characteristics when used by a peak to average power constrained modulation format. In one embodiment, a set of original ordered sequences is selected to have at least one desired property. A set of extended sequences is created from the original sequences by beginning with an element of an original sequence and cyclically appending elements of the original sequence in order to obtain a desired extended sequence length. Each extended sequence is modified using a corresponding modifying sequence, such that a training sequence can be generated from any one of the modified extended sequences. Each modifying sequence is selected so that the generated training sequence when modulated by a selected modulation format has the at least one desired property of the corresponding original ordered sequence.